# UNITED STATES PATENT AND TRADEMARK OFFICE

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| 09/996,522 | 11/27/2001 | Rick K. Taira | 501090.01 | 3545 |

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| EXAMINER |
|---|
| VO, HUYEN X |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2655 | |

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on _27 November 2001_.

2a)☐ This action is **FINAL**.      2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) _1-32_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-32_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _12 August 2002_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance.  See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _8/12/2003_.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

## DETAILED ACTION

### *Claim Objections*

1.     Claims 2-8 are objected to because of the following informalities: claims 2-

8 are a duplicate of claims 10-16, respectively.  The examiner treats claims 2-8

being dependent on the base claim 1.  Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2.     The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.  Patentability shall not be negatived by the manner in which the invention was made.

3.     Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Haug et al. (US Patent No. 6292771) in view of Ilif (US Patent No.

6022315).

4.     Regarding claim 1, Haug et al. disclose a method for translating a report

generated in natural language into structured computer-understandable frames

comprising: eliciting directed input as to a medical condition and symptoms (*col.*

*8, ln. 57-67*); using the directed input elicited to identify a disease signature

corresponding to the medical condition and symptoms (*col. 8, ln. 57 to col. 9, ln.*

*15*); the word properties include a likelihood that combinations of words in the

lexical domain inter-depend and each word's inherent tendency to link with other

words (*col. 7, ln. 1-21*); looking up the word properties for words used in the

report in the lexical domain (*col. 7, ln. 1-21, the system must look up word*

*properties before checking and combining*); calculating for combinations of words

used in sentences contained in the report a statistical likelihood that they inter-

depend and identifying probable word links (*col. 7, ln. 1-67*); semantically

interpreting a nature of the probable word links (*col. 7, ln. 55 to col. 8, ln. 56*); and

generating the structured computer-understandable frames based on the nature

of the probable word links (*col. 8, ln. 36-67*).

Haug et al. fail to disclose the step of using the disease signature to

identify a lexical domain containing language information pertinent to the disease

signature, the lexical domain having been programmed with word properties for

words expected to be used with regard to the disease signature. However, Iliff

teaches the step of using the disease signature to identify a lexical domain

containing language information pertinent to the disease signature (*referring*

*figure 10A or col. 35, ln. 33 to col. 36, ln. 67, depend on user's input complaint, a*

*set of questions corresponding to that particular complaint is generated to prompt*

*the user, and the user's response is recorded*), the lexical domain having been

programmed with word properties for words expected to be used with regard to

the disease signature (*referring figure 10A or col. 35, ln. 33 to col. 36, ln. 67*).

Since Haug et al. and Iliff are analogous art because they are from the

same field of endeavors, it would have been obvious to one of ordinary skill in the

art at the time of invention to modify Haug et al. by incorporating the teaching of

Iliff in order to enable the system to ask the user the right question to generate a
relevant medical report.


5.      Regarding claim 9, Haug et al. disclose a method for translating a report
about a patient, afflicted with a medical condition and symptoms, generated in
natural language into structured computer-understandable frames comprising:
identifying a disease signature corresponding to the medical condition and
symptoms (*col. 8, In. 57 to col. 9, In. 15*); the word properties include a likelihood
that combinations of words in the lexical domain inter-depend and each word's
inherent tendency to link with other words (*col. 7, In. 1-21*); looking up the word
properties for words used in the report in the lexical domain (*col. 7, In. 1-21, the
system must look up word properties before checking and combining*);
calculating for combinations of words used in sentences contained in the report a
statistical likelihood that they inter-depend and identifying probable word links
(*col. 7, In. 1-67*); semantically interpreting a nature of the probable word links
(*col. 7, In. 55 to col. 8, In. 56*); and generating the structured computer-
understandable frames based on the nature of the probable word links (*col. 8, In.
36-67*).

        Haug et al. fail to disclose the step of using the disease signature to
identify a lexical domain containing language information pertinent to the disease
signature, the lexical domain having been programmed with word properties for
words expected to be used with regard to the disease signature.  However, Iliff
teaches the step of using the disease signature to identify a lexical domain

containing language information pertinent to the disease signature (*referring*

*figure 10A or col. 35, In. 33 to col. 36, In. 67, depend on user's input complaint, a*

*set of questions corresponding to that particular complaint is generated to prompt*

*the user, and the user's response is recorded*), the lexical domain having been

programmed with word properties for words expected to be used with regard to

the disease signature (*referring figure 10A or col. 35, In. 33 to col. 36, In. 67*).

Since Haug et al. and Iliff are analogous art because they are from the

same field of endeavors, it would have been obvious to one of ordinary skill in the

art at the time of invention to modify Haug et al. by incorporating the teaching of

Iliff in order to enable the system to ask the user the right question to generate

relevant medical report.


6.      Regarding claim 17, Haug et al. disclose a system for translating a report

generated in natural language into structured computer-understandable frames

comprising: a patient input module that elicits from a patient directed input as to

the patient's medical condition and symptoms and, based on the patient directed

input, identifies a disease signature corresponding the patient's medical condition

and symptoms (*col. 8, In. 57 to col. 9, In. 15*); the word properties including a

likelihood that combinations of words in the lexical domain interdepend and each

word's inherent tendency to link with other words (*col. 7, In. 1-21*); the lexical

analyzer looks up the word properties for words used in the report in the lexical

domain (*col. 7, In. 1-21, the system must look up word properties before*

*checking and combining*); a parser/semantic interpreter module for calculating for

combinations of words used in sentences contained in the report a statistical

likelihood that they interdepend and identifying probable word links (*col. 7, ln. 55*

*to col. 8, ln. 56*); and a structured frame generator that creates the structured

computer-understandable frames based on the nature of the probable word links

(*col. 8, ln. 36-67*).

Haug et al. fail to disclose a lexical analyzer using a lexical domain

containing language information pertinent to the disease signature, the lexical

domain having been programmed with word properties for words expected to be

used with regard to the disease signature.  However, Iliff teaches a lexical

analyzer using a lexical domain containing language information pertinent to the

disease signature, the lexical domain having been programmed with word

properties for words expected to be used with regard to the disease signature

(*referring figure 10A or col. 35, ln. 33 to col. 36, ln. 67, depend on user's input*

*complaint, a set of questions corresponding to that particular complaint is*

*generated to prompt the user, and the user's response is recorded*).

Since Haug et al. and Iliff are analogous art because they are from the

same field of endeavors, it would have been obvious to one of ordinary skill in the

art at the time of invention to modify Haug et al. by incorporating the teaching of

Iliff in order to enable the system to ask the user the right question to generate a

relevant medical report.


7.      Regarding claim 25, Haug et al. disclose a system for translating a report

about a patient, afflicted with a medical condition and symptoms, generated in

natural language into structured computer-understandable frames comprising: a

disease signature identifier which identifies a disease from which the patient is

suffering corresponding to the patient's medical condition and symptoms (*col. 8,*

*ln. 57 to col. 9, ln. 15*); the lexical analyzer looks up the word properties for words

used in the report in the lexical domain (*col. 7, ln. 1-21, the system must look up*

*word properties before checking and combining*); a parser/semantic interpreter

module for calculating for combinations of words used in sentences contained in

the report a statistical likelihood that they interdepend and identifying probable

word links (*col. 7, ln. 55 to col. 8, ln. 56*); and a structured frame generator that

creates the structured computer-understandable frames based on the nature of

the probable word links (*col. 8, ln. 36-67*).

Haug et al. fail to disclose a lexical analyzer using a lexical domain

containing language information pertinent to the disease signature, the lexical

domain having been programmed with word properties for words expected to be

used with regard to the disease signature.  However, Iliff teaches a lexical

analyzer using a lexical domain containing language information pertinent to the

disease signature, the lexical domain having been programmed with word

properties for words expected to be used with regard to the disease signature

(*referring figure 10A or col. 35, ln. 33 to col. 36, ln. 67, depend on user's input*

*complaint, a set of questions corresponding to that particular complaint is*

*generated to prompt the user, and the user's response is recorded*).

Since Haug et al. and Iliff are analogous art because they are from the

same field of endeavors, it would have been obvious to one of ordinary skill in the

art at the time of invention to modify Haug et al. by incorporating the teaching of

Iliff in order to enable the system to ask the user the right question to generate

relevant medical report.

8.      Regarding claims 2, 10, 18, and 26, structurally analyzing the report to

delineate between the sections of the report and between separate sentences

(*col. 9, In. 17-51*).

9.      Regarding claims 3-5, 11-13, 19-21, and 27-29, Haug et al. further

disclose that the word properties include the syntactic and/or semantic properties

of each word (*col. 7, In. 1 to col. 8, In. 56*).

10.     Regarding claims 6, 14, 22, and 30, Haug et al. further disclose that the

likelihood of that combinations of words in the lexical domain inter-depend is

based on empirical statistics on how frequently the combinations of words in the

lexical domain have inter-depended in preexisting reports (*col. 7, In. 9-21*).

11.     Regarding claims 7, 15, 23, and 31, Haug et al. further disclose that the

inherent tendency of each word to link with other words is based on empirical

statistics of how frequently that word interacts with other words and with what

types of other words (*col. 7, In. 9-21*).

12.     Regarding claims 8, 16, 24, and 32, Haug et al. further disclose that for

novel combinations of individual words not stored in the lexical domain, the

likelihood that the novel word combination inter-depends is estimated based on

syntactic and semantic properties of the individual words (*col. 7, In. 22 to col. 8,*

*In. 20*).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Huyen Vo whose telephone number is 703-

305-8665.  The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Doris To can be reached on 703-305-4827.  The fax

phone number for the organization where this application or proceeding is

assigned is 703-872-9306.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system.  Status information

for published applications may be obtained from either Private PAIR or Public

PAIR.  Status information for unpublished applications is available through

Private PAIR only.  For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free).

Examiner Huyen X. Vo                                        August 25, 2004

SUSAN MCFADDEN
PRIMARY EXAMINER